

## Lauerman: Clean Hydrogen Civil War Series, Part 1 The Evidence

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### Body

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The battle for hearts and minds of the global clean hydrogen industry has already begun, with blue hydrogen the potential loser unless its proponents act quicker and smarter than our oilsands industry did in the past for a simple reason: the battle is coming from outside and within.

From day one, the largest green groups such as Friends of the Earth and Greenpeace have opposed blue hydrogen. They claim it is no more than fossil fuel industry greenwash for relatively dirty natural gas, and as a result won't help combat climate change.

Their three main criticisms of blue hydrogen are: carbon capture and storage (CCS) facilities are only able to capture 60 to 90 per cent of carbon dioxide (CO<sub>2</sub>) emissions; methane emissions from natural gas supply chains are often large; and blue hydrogen projects block the development of green hydrogen by stealing market for clean hydrogen and hogging capital for investment.

And at the same time, some promoters of green hydrogen projects are now jumping onto the anti-blue hydrogen bandwagon, the most notable being Australian mining multi-billionaire Andrew Forrest. The CEO of Perth-based Fortescue Metals Group (FMG) and its wholly-owned subsidiary Fortescue Future Industries (FFI) launched the Green Hydrogen Organization (GH2) in September, apparently in competition to the technologically-agnostic Hydrogen Council and as a means to kibosh development of blue hydrogen production.

'We have to get to a point where everyone realizes blue hydrogen is a con,' Forrest said in an article profiling him in The New York Times in mid-October. 'It's no better than fossil fuels.' In an interview with the Financial Times shortly before COP26 in Glasgow, Forrest said he was going to lobby world leaders at the conference to adopt a global accreditation system that would allow only green hydrogen to be classified as clean hydrogen.

FFI is targeting a massive 15 million tonnes of green hydrogen production by 2030, and an even more massive 50 MT by 2040, with the goal of producing in a wide range of countries including Australia, Argentina and Canada.

In Part 1 of this two-part series, GH2's mission, to thwart development of blue hydrogen, will be discussed. The second part will explore whether the Hydrogen Council is up to the task of defending the world's budding blue hydrogen industry, and how best to respond to the attack by GH2 and major environmental groups, with many lessons to be learned from the 'dirty oil' lobby's successful attack on the oilsands.

#### GH2's views on blue hydrogen

GH2 is based in Geneva, but its secretariat is spread across London, Perth and Sydney as well. The organization is chaired by former Australian prime minister, and good friend of Forrest, Malcom Turnbull. The mission statement of GH2 appears noble enough:

'The mission of the Green Hydrogen Organisation (GH2) is to dramatically accelerate the production and utilisation of green hydrogen across a range of sectors globally. It will push to rapidly decarbonise industries like steel, cement, fertilisers, shipping and aviation that have so far made limited progress reducing their emissions.'

But Turnbull hinted at his organization's real mission in GH2's launch document, when he said: 'Too many of the national hydrogen policies and hydrogen associations overlook the fact that hydrogen produced from fossil fuels will generally result in more CO2 emissions, not less.'

This has since been expanded upon on GH2's website: 'In this rush to develop more hydrogen production, definitions are becoming blurred between hydrogen production that is genuinely green, and hydrogen production that is branded 'clean' but is ultimately a by-product of the fossil fuel sector.&hellip; The emissions from fossil fuel hydrogen production are extraordinarily high, in some cases higher than the use of coal to generate electricity.&hellip; Fossil fuel hydrogen is a road to nowhere, risks creating stranded assets, and diverts focus and attention from the rapid, energetic scaleup of green hydrogen.'

Ominously for proponents of blue hydrogen, GH2, in collaboration with the UN High-Level Champions for Climate Action, launched a bid to develop a global Green Hydrogen Standard on Nov. 4 at COP26. GH2 invited government, industry and civil society to join the effort to create the standard, scheduling a kick-off meeting in Geneva for Dec. 1-2.

### **'&lsquo;Make it look as bad as possible'**

You may have noticed GH2 suggested in both its launch document and on its website that blue hydrogen could in fact lead to greater emissions, not less. Where the heck did that come from? Well, the source is likely the peer-reviewed paper 'How green is blue hydrogen?', published in the journal Energy Science and Engineering in mid-August, which has become the subject of a lot of heated, online debate.

'We undertake the first effort in a peer-reviewed paper to examine the lifecycle greenhouse gas emissions of blue hydrogen, accounting for emissions of both carbon dioxide and unburned fugitive methane,' the authors Robert Howarth and Mark Jacobson wrote. 'Far from being low carbon, greenhouse gas emissions from the production of blue hydrogen are quite high, particularly due to the release of fugitive methane.'

And in their most extreme case, where the carbon capture rate is lowest, methane emissions highest, and the impact of emissions based on a 20-year period (maximizing the impact of methane on global warming as it dissipates over time; unlike CO2), full-cycle emissions of blue hydrogen are higher than simply burning coal to generate electricity.

Howarth and Jacobson have made much of the fact that their paper was peer reviewed, and hence, supposedly the gospel truth. But based on the Twitter firestorm it caused, and the critique of their paper by some extremely bright and knowledgeable people with very solid environmental credentials, let's just say the findings of their paper are questionable.

The most apt and succinct Twitter critique of the paper was by David Joffe, head of carbon budgets at the U.K. Climate Change Committee (CCC). 'The paper's calculations potentially represent a case where blue H2 is done really badly and without any sensible regulations,' he tweeted on August 13. 'And then cherry-picked a climate metric to make it look as bad as possible.'

To conclude Part 1, the point I'm making here is that by relying on the most extreme case of an academic paper, GH2 has made it clear they are planning to play very dirty in their attempt to thwart development of blue hydrogen.

## Lauerman: Clean Hydrogen Civil War Series, Part 1 The Evidence

Part 2 of this series will explore whether the Hydrogen Council is up to the task of defending blue hydrogen, and how best to respond to the attack by GH2 and major environmental groups on the budding industry.

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